BROADCAST tools INC

Installation and Operation Manual

FlexPhones Master

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e-mail: support@broadcasttools.com **voice:** 360.854.9559 **fax:** 360.854.9479

INTRODUCTION

Thank you for your purchase of a Broadcast Tools® **FlexPhones Master** multi-user headphone system (referred to as the FlexPhones Master or Master throughout this manual). We're confident that this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the Broadcast Tools® FlexPhones Master.

SAFETY INFORMATION

Only qualified personnel should install Broadcast Tools® products. Incorrect or inappropriate use and/or installation could result in a hazardous condition.

Broadcast Tools, Inc., is unable to support NON-Broadcast Tools software, hardware or NON-Broadcast Tools computer/hardware/software problems. If you experience these problems, please research your hardware/software instruction manuals or contact the manufacturers technical support department.

WHO TO CONTACT FOR HELP

If you have any questions regarding your product or you need assistance, please contact your distributor from whom you purchased this equipment.

If you would like more information about Broadcast Tools® products, you may reach us at:

Broadcast Tools, Inc.
131 State Street
Sedro-Woolley, WA 98284-1540 USA
Voice: 360 . 854 . 9559
Fax: 360 . 854 . 9479

Internet Home Page: www.broadcasttools.com
E-mail: support@broadcasttools.com

THANK YOU FOR CHOOSING
BROADCAST TOOLS® BRAND PRODUCTS!

CAUTION!

Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.

NOTE:

This manual should be read thoroughly before installation and operation.

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Product Description:

The FlexPhones Master is a professional Broadcast/Studio six channel distributed headphone system with independent talkback capabilities. Each of the six channels provides stereo program monitoring and selective talkback with interconnection via CAT5 cable to multiple Active Headphone Remotes (AHR-1) and/or the Monitor Selector Interface (MSI). Multiple masters may be cascaded to form larger systems. The FlexPhones Master is equipped with inputs for stereo program and talkback audio. Rear panel program and talkback trimmers are provided to pre-set maximum input levels. The microphone/line level talkback input is available via a rear panel plug-in euroblock connector, while the front panel XLR connector facilitates the use of a user provided gooseneck microphone or headset. The front panel is equipped with a level control for local headphones with both 1/4" and 1/8" stereo headphone jacks. The six front panel talkback switches allow the user to independently communicate with each AHR-1 listener and can be configured to insert talkback audio into only the left or both ears and dim either or both program channels. Any combination of switches may be pressed, while the "All-Call" interrupts all listeners. The Talkback function can be remotely controlled. Six RJ45 jacks are provided to distribute audio and power via CAT5 cable to the AHR-1's, and/or MSI's

Installation:

Please examine your FlexPhones Master and/or AHR-1 carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the FlexPhones Master, 16vac@600ma wall power transformer, two CAT5 cables and this manual.

Installation of the FlexPhones Master in high RF environments should be performed with care. Shielded cable is suggested for all audio connections.

All shields should be tied to the EGND terminals. The station ground should be connected to the chassis ground screw located on the far right side of the FlexPhones Master as viewed from the rear. It is recommended that all cables connected to the FlexPhones Master be looped through ferrite cores to suppress RF. Surge protection with RF filtering is also suggested for the wall transformer. The purchase of an inexpensive UPS will provide back up in case of power outages.

Connections are via plug-in euroblock connectors and RJ45 connectors. Remove the connector from the header; remove about 1/8" of insulation from each wire. Insert the wire into the desired terminal and then tighten the screw. Be sure no bare wires are exposed. Reinstall the connectors.

Stereo Program Input

Normal program audio should be connected to the + and - inputs for balanced operation, or to the + input and grounding the - side for unbalanced input operation on TB1 (bottom). Audio levels should be between -15 and +4dBu.

Talkback Audio Input

Mic or line level audio should be connected to the + and - inputs for balanced operation, or to the + input and grounding the - side for unbalanced input operation on either TB1 (top) or the front panel XLR connector. Audio levels should be between –60 and –30dBu in MIC position or –15 and +4dBu in LINE position. JP1 and JP2 are used to set the talkback input for either MIC or LINE levels. Follow the jumper layout in the appendix to set these two jumpers to the desired position. The factory default is set to MIC.

Talkback Audio Output

The unbalanced output can be used to feed additional FlexPhones Master talkback inputs. Connections to TB1 (top) can be made to the + output and ground for unbalanced output operation.

NOTE:

For proper installation, follow the silkscreen labels on the rear panel.

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DIM jumper configuration

Removing either or both of the Dim jumpers mutes the program audio during a talkback session, while inserting either or both will dim the program audio approximately 20db below normal program levels. Use the table below along with the jumper layout sheet in the appendix to properly configure. Factory defaults have these jumpers installed.

Function	Chnl 1	Chnl 2	Chnl 3	Chnl 4	Chnl 5	Chnl 6
LT Dim	JP5	JP8	JP11	JP14	JP17	JP20
RT Dim	JP6	JP9	JP12	JP15	JP18	JP21
RT T/B Enable	JP7	JP10	JP13	JP16	JP19	JP22

Right ear talkback enable jumper:

In a talkback session, talkback audio is always feed into the left ear. Placing a jumper over the desired header will enable talkback audio in the right ear. Use the table below along with the jumper layout sheet in the appendix to properly configure. Factory default has these jumpers installed.

Function	Chnl 1	Chnl 2	Chnl 3	Chnl 4	Chnl 5	Chnl 6
LT Dim	JP5	JP8	JP11	JP14	JP17	JP20
RT Dim	JP6	JP9	JP12	JP15	JP18	JP21
RT T/B Enable	JP7	JP10	JP13	JP16	JP19	JP22

Auxiliary Remote/Local jumper set-up

We provide the wire attached to pin 5 of each RJ45 for use by the user. The wire terminates on a three-position header. The header is labeled JPxx. The factory default is set to Remote. Use the table below along with the jumper layout sheet in the appendix to properly configure.

Function	RMT 1 JP24	RMT 2 JP26	RMT 3 JP28	RMT 4 JP30	RMT 5 JP32	RMT 6 JP34
Remote	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2
Local	2 & 3	2 & 3	2 & 3	2 & 3	2 & 3	2 & 3

Remote Control input jumper set-up

Each optically isolated input is equipped with a four-position header. The header is labeled JPxx. The factory default is set for a DRY (5 vdc source) input (switch, contact, open collector) with a jumper between 1 & 2 and another jumper over 3 & 4. To change the input to WET (user supplied voltage between 5 and 24vdc), remove both jumpers and place ONE jumper over pins 2 & 3. Use the table below along with the jumper layout sheet in the appendix to properly configure.

! NOTE: Refer to the schematic diagram for the proper polarity when attaching equipment to each input.

Function	RMT 1 JP23	RMT 2 JP25	RMT 3 JP27	RMT 4 JP29	RMT 5 JP31	RMT 6 JP33	All-Call JP35
Wet 2 & 3	A = Anode B = Cath	A = Anode B = Cath	A = Anode B = Cath	A = Anode B = Cath	A = Anode B = Cath	A = Anode B = Cath	A = Anode B = Cath
Dry 1 & 2 / 3 & 4	A = Gnd B = Cath	A = Gnd B = Cath	A = Gnd B = Cath	A = Gnd B = Cath	A = Gnd B = Cath	A = Gnd B = Cath	A = Gnd B = Cath

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Cable Interconnection

After completion of the jumper set-up and the audio connections have been made, connection of the CAT5 cable can be started. Connect the user supplied CAT5 cable between the desired channels (follow the numbers on the chassis) rear panel RJ45 on the FlexPhones Master and each AHR-1 and/or MSI. Up to two AHR-1's or one AHR-1 and one MSI can be daisy-chained from each RJ45 on the Master.

Program Level Setup

Turn the rear panel "Master Pgm Lvl" trimmer CCW. Set all headphone level controls to 1 o'clock. Plug a set of headphones in to either of the AHR-1's headphone jacks. Feed the desired program level into the Master and adjust R2 the rear panel "Master Pgm Lvl" trimmer for the desired level. This also holds true for the MSI.

Talkback Level Setup

Turn the rear panel "T/B Lvl" trimmer CCW. Plug a set of headphones in to either of the AHR-1's headphone jacks. Hold down the talkback channel button that the AHR-1 is connected to and adjust the "T/B Lvl" trimmer R21 on the rear panel of the master for the appropriate talkback level. Depending on the configuration for each channel, the program audio will be muted or dimmed in each ear, while the talkback will be present on either or both ears. This also holds true for the MSI.

Microphone Phantom Power Jumper

To power microphones needing phantom power; install the supplied jumper over JP36. JP36 is supplied but not installed. 15vdc is supplied when installed.

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Operation:

To call any combination of AHR-1's press the desired front panel talkback button(s) or the ALL CALL button. You may also do the same using user supplied momentary normally open dry contact switches connected across each of the rear panel remote control inputs.

The Front panel headphone jacks and level control only monitor program. Only one set of headphones should be used.

NOTE: The talkback feature may be added by reconfiguring internal jumpers. Consult the factory before making this change.

NOTE: 8 ohm and/or monaural headphones should not be used with these products.

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Specifications:

Program Input Level	-15 to +4 dBu. MIL+24dBu, balanced, bridging 10k Ω.
Talkback Input Level	-60 to -30 dBu MIC / -15 to +4dBu LINE, balanced.
	Microphone phantom power +15vdc.
Gain	6 dB.
Frequency Response	10 to 20 kHz; +/- .0.25dB
Signal/Noise Ratio	>85 dB nominal, weighted 10 to 22Khz.
Distortion	0.005% THD, nominal.
IMD (250/7kHz)	0.005% IMD, nominal.
Headphone Output	24 to 600 W headphones. 200mw nominal.
Switching Method	Professional level analog switch arrays.
Logic	CMOS.
Operation Control	Front Panel - Momentary switches.
	Remote - Optically isolated (5 to 24vdc) wet or dry.
	Default = Dry (5 volt internally sourced)
Status/Control	Front Panel - LED indicators.
Interfacing	Master audio & remote rontrol - Rear panel euroblock removable screw terminals with mating connectors and female XLR.
	AHR-1 power, audio and control - RJ45 connectors and plug-in euroblock screw terminals.
	MSI power, audio and control - RJ45 connectors and plug-in euroblock screw terminals.
	Wiring conforms to the StudioHub+ format.
Power	16 Vac @ 600 ma, 120 Vac 50-60 Hz power transformer. Supplied. (CE 240 Vac 50-60 Hz optional)
Mechanical	Master - 8.50” x 1.55” x 6.00” (WHD) / Weight: 3.0 lbs.
	AHR-1 – 3.70” x 1.55” x 3.50” (WHD) / Weight: 1.0 lbs
Options	Master - RA-1, 1 RU rack Shelf. Hold two units.
	AHR-1 - HR-1/MP, mounting panel
	AHR-1 - HR-1/MP-XLR, mounting plate with XLR connector hole.
	MSI, Monitor Selector Interface.

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Broadcast Tools, Inc.
131 State Street
Sedro-Woolley, WA 98284 • USA

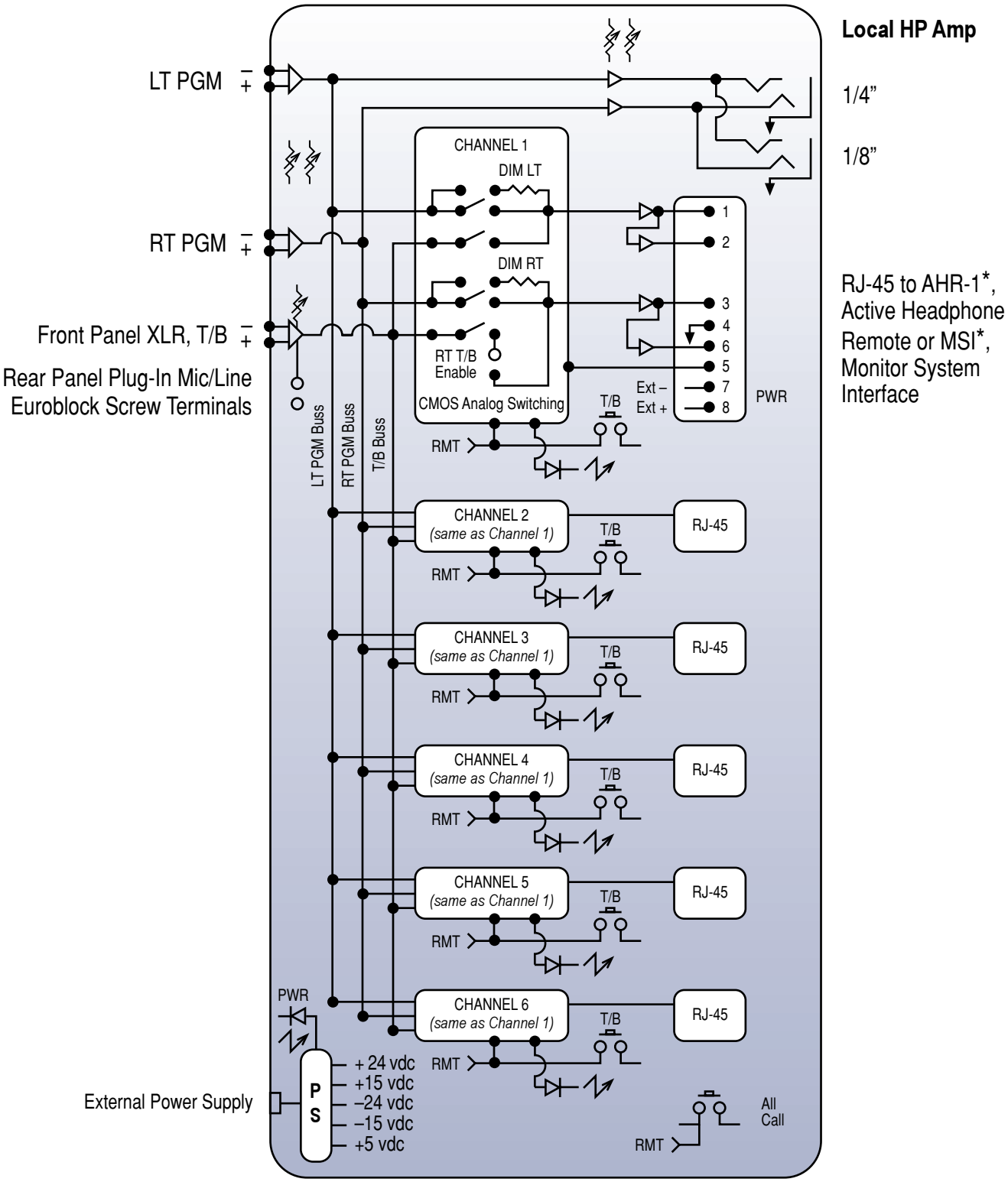
360.854.9559 **voice** • 360.854.9479 **fax**
support@broadcasttools.com **e-mail**
www.broadcasttools.com **website**

BROADCAST tools

FlexPhones Master

Six Channel Headphone System with Independent Talkback

Functional Diagram



* Must be purchased separately.

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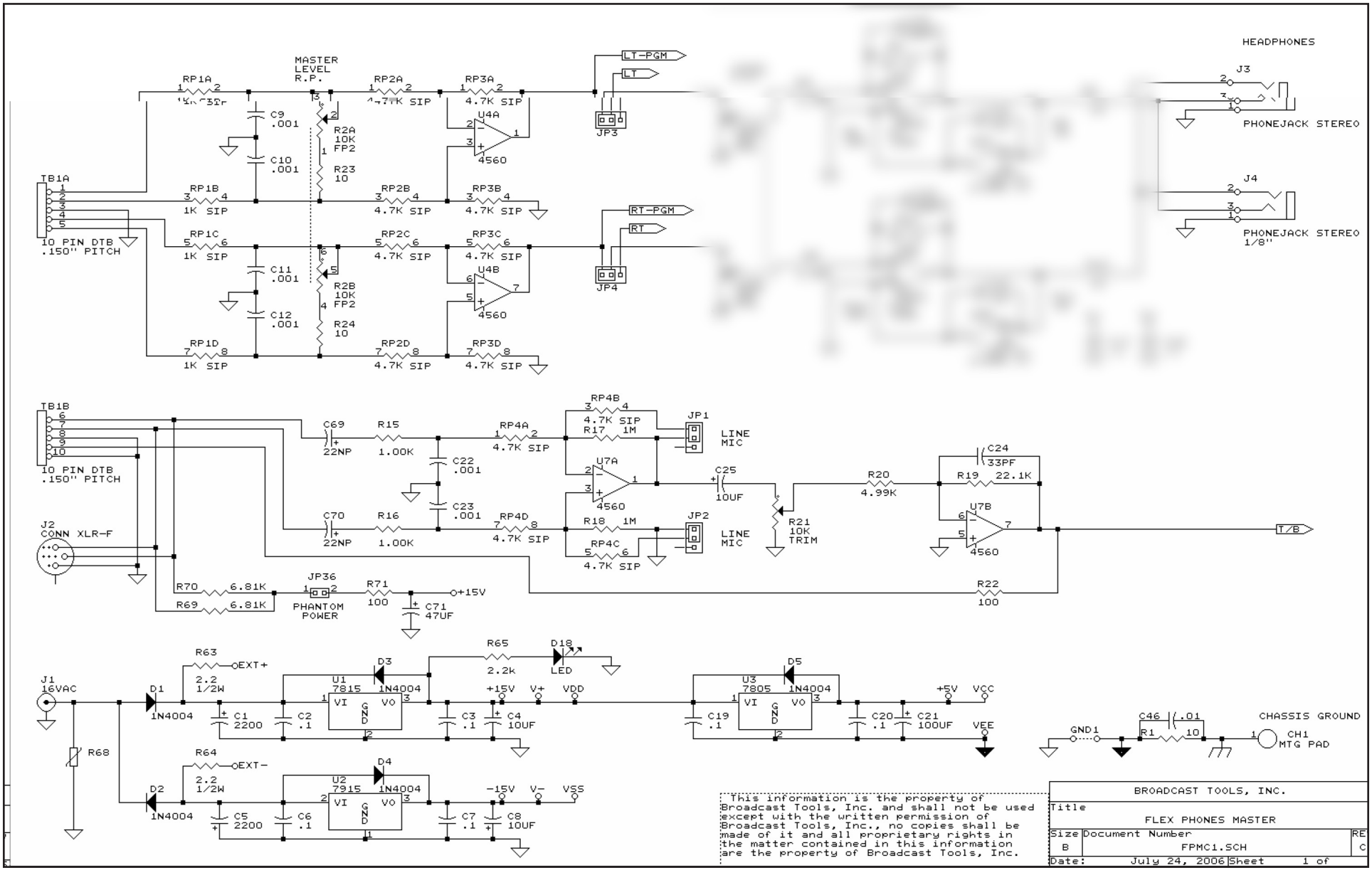

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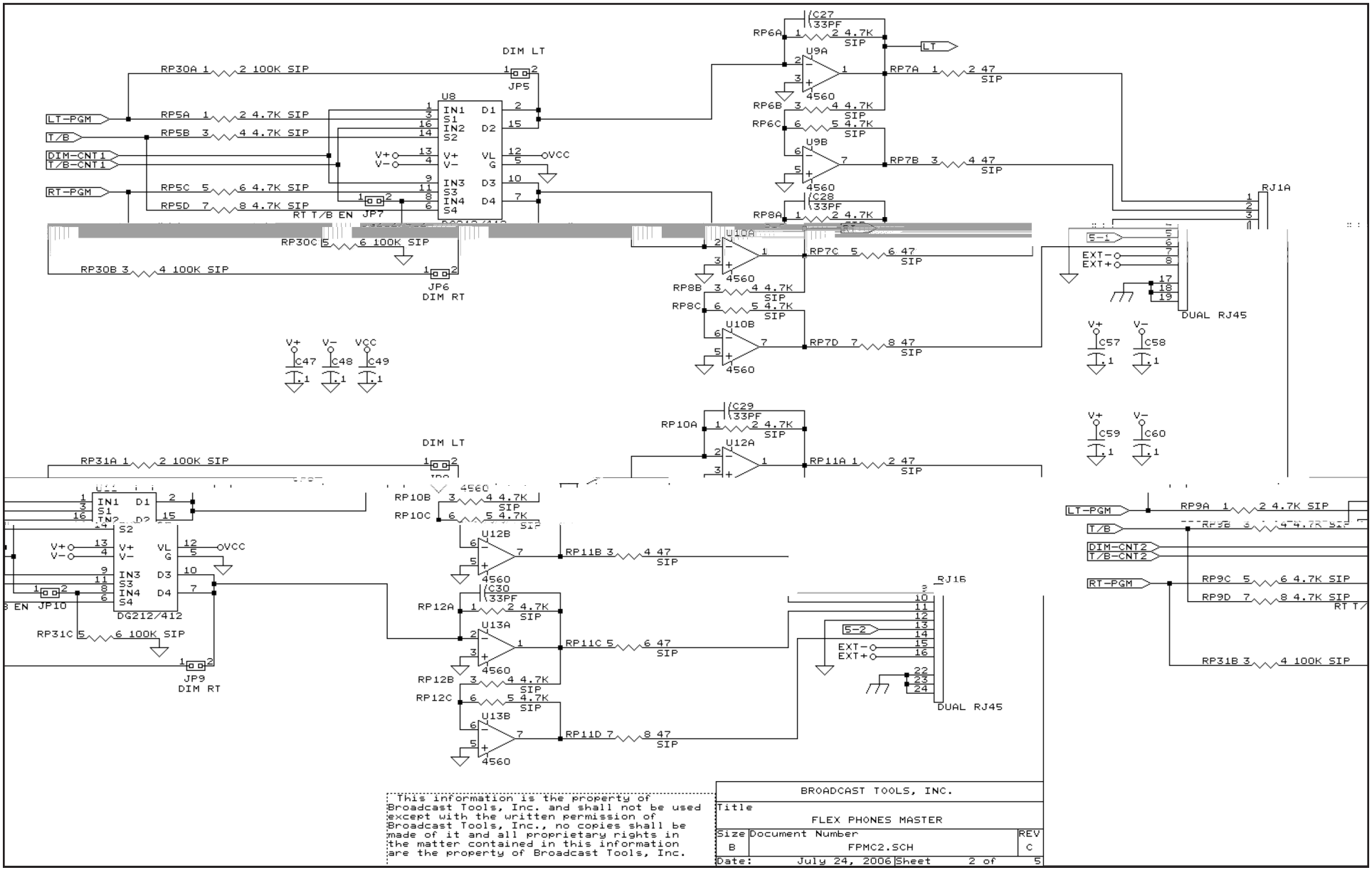

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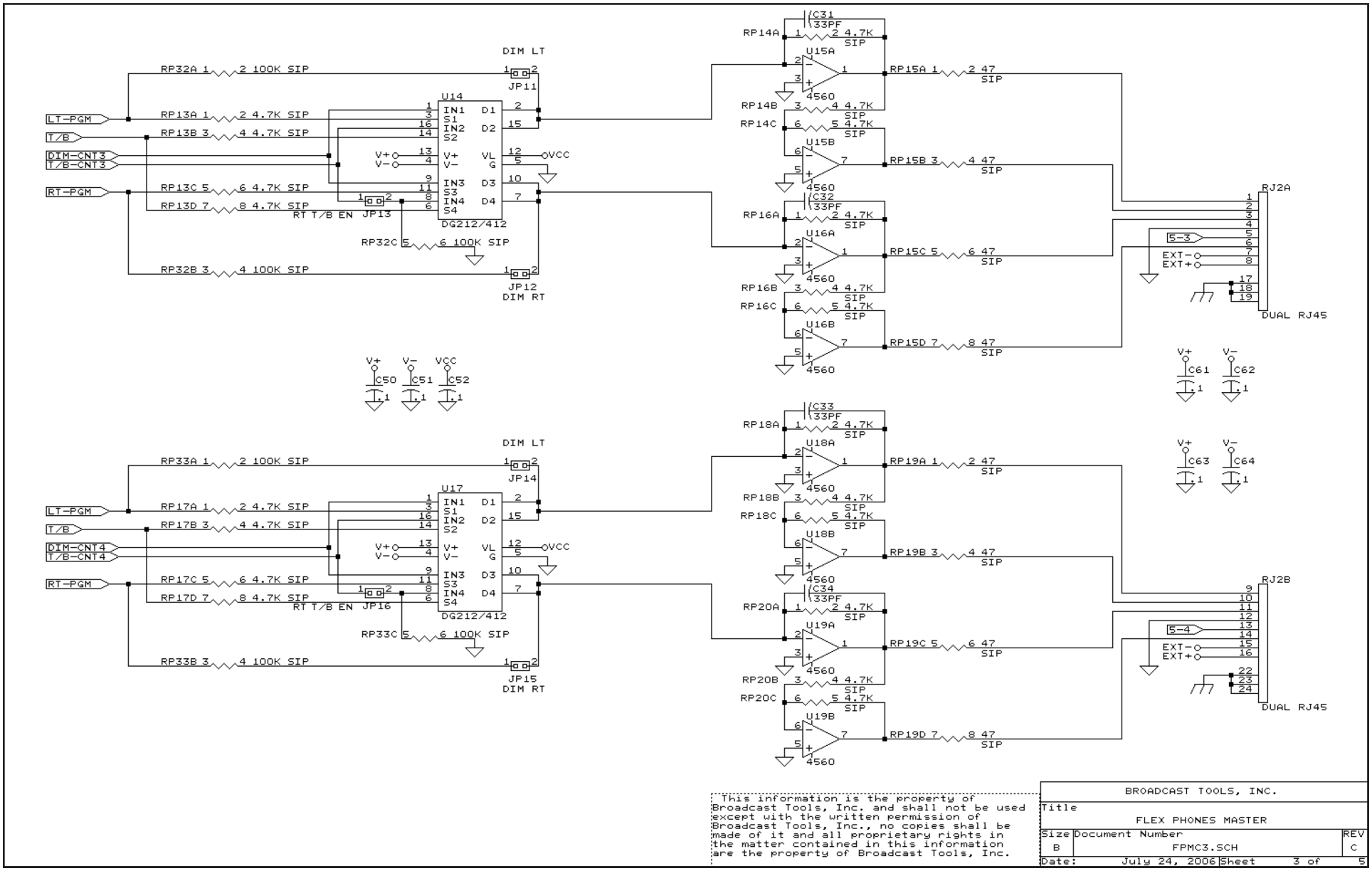

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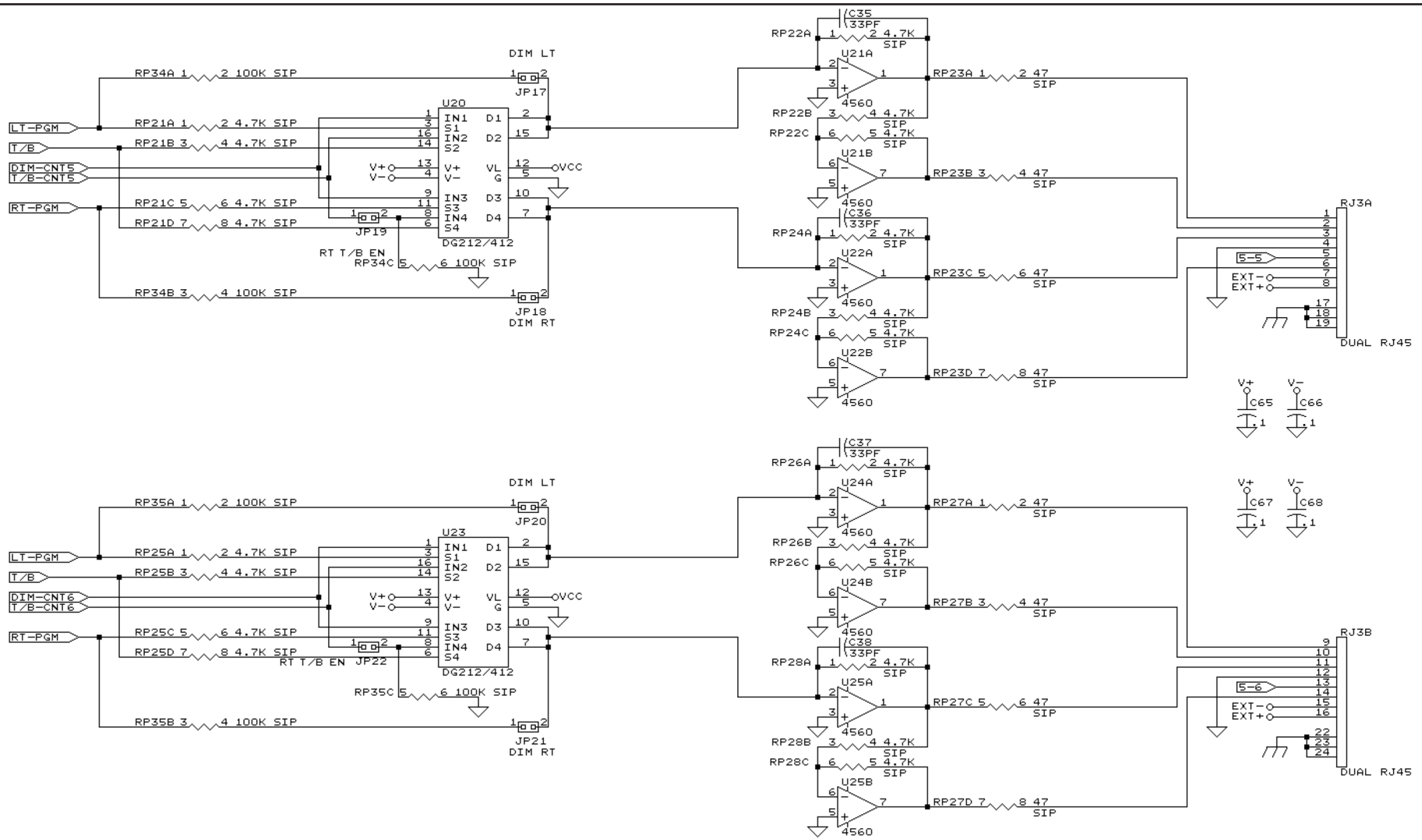

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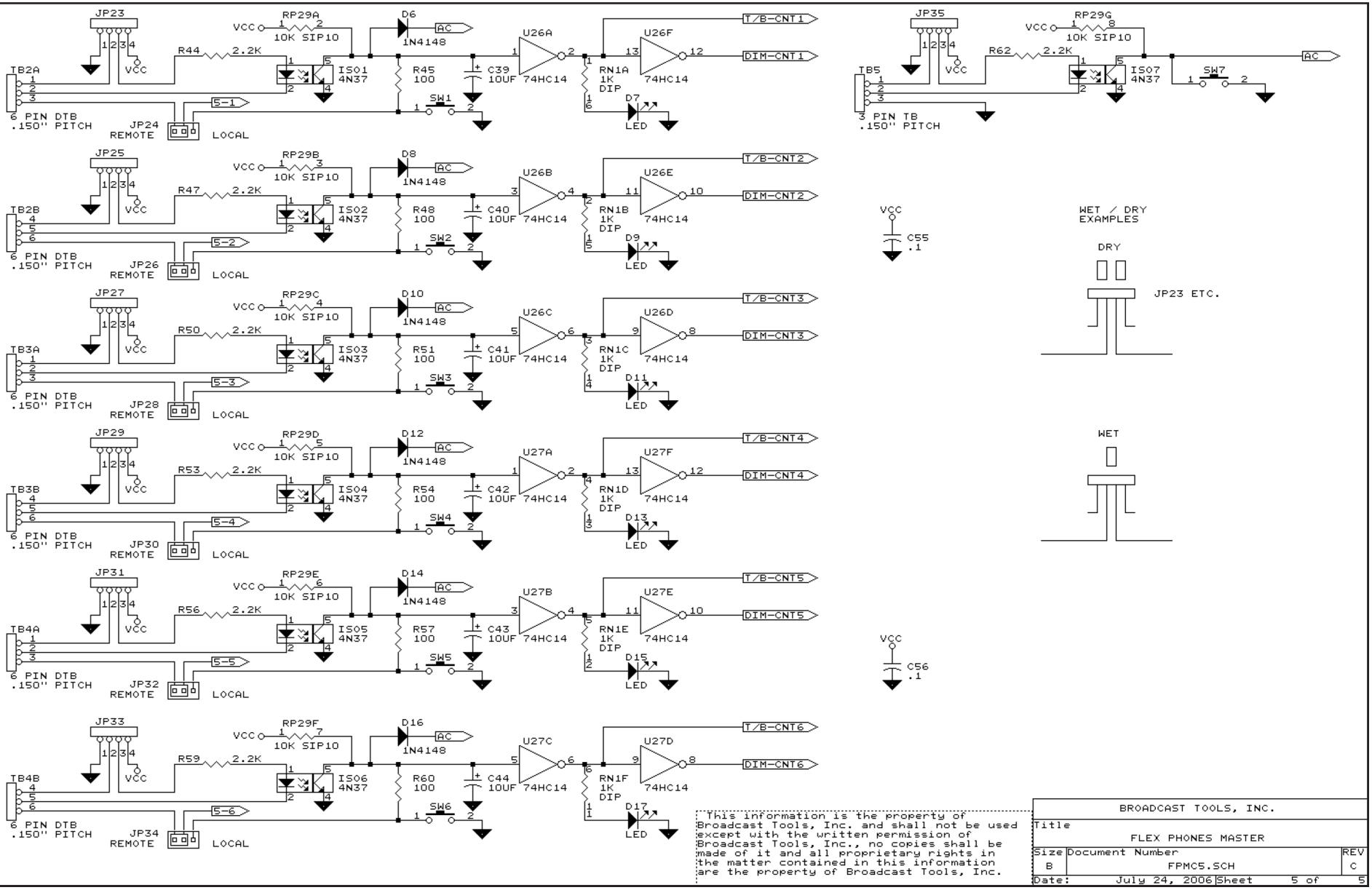

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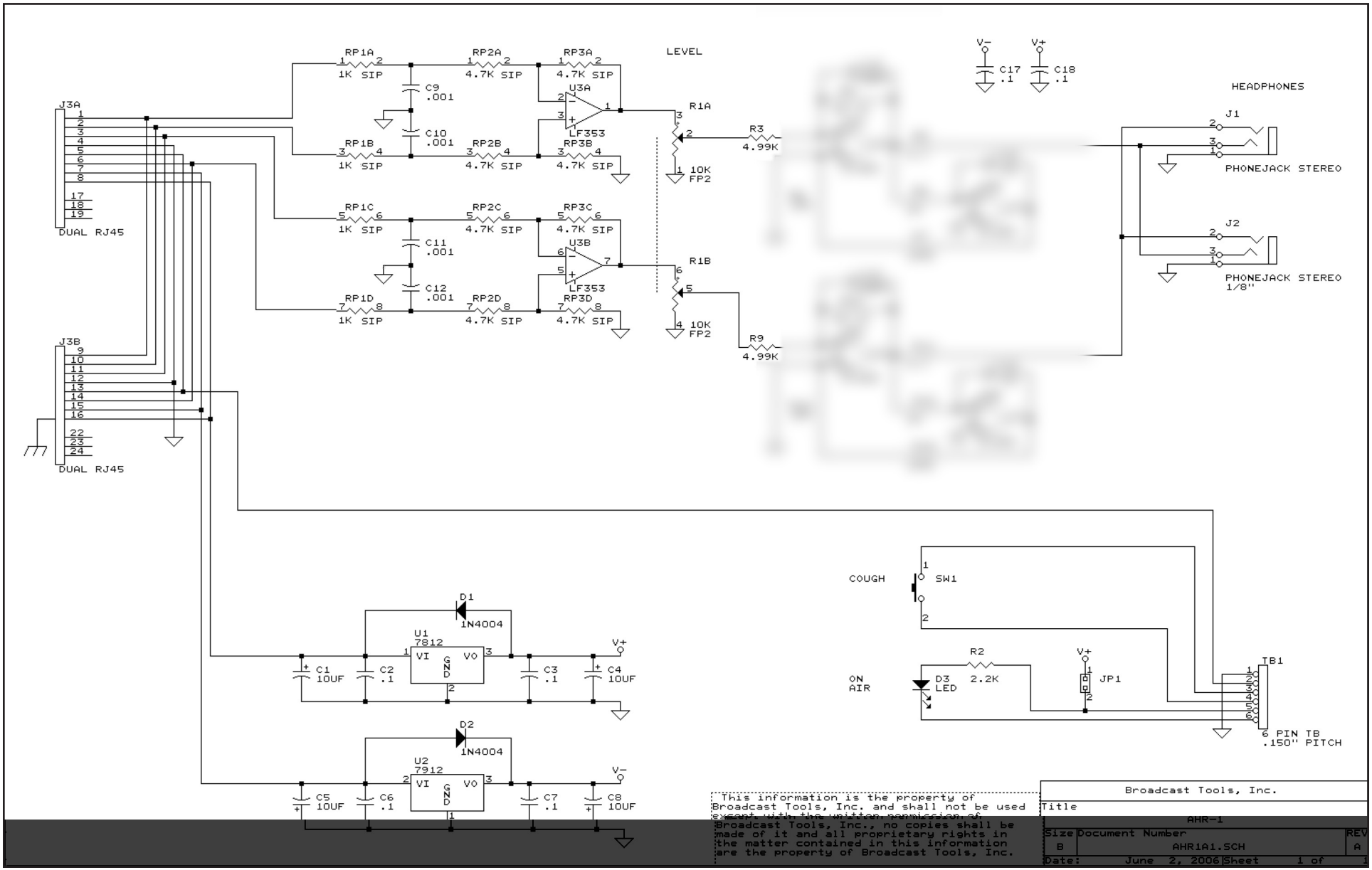

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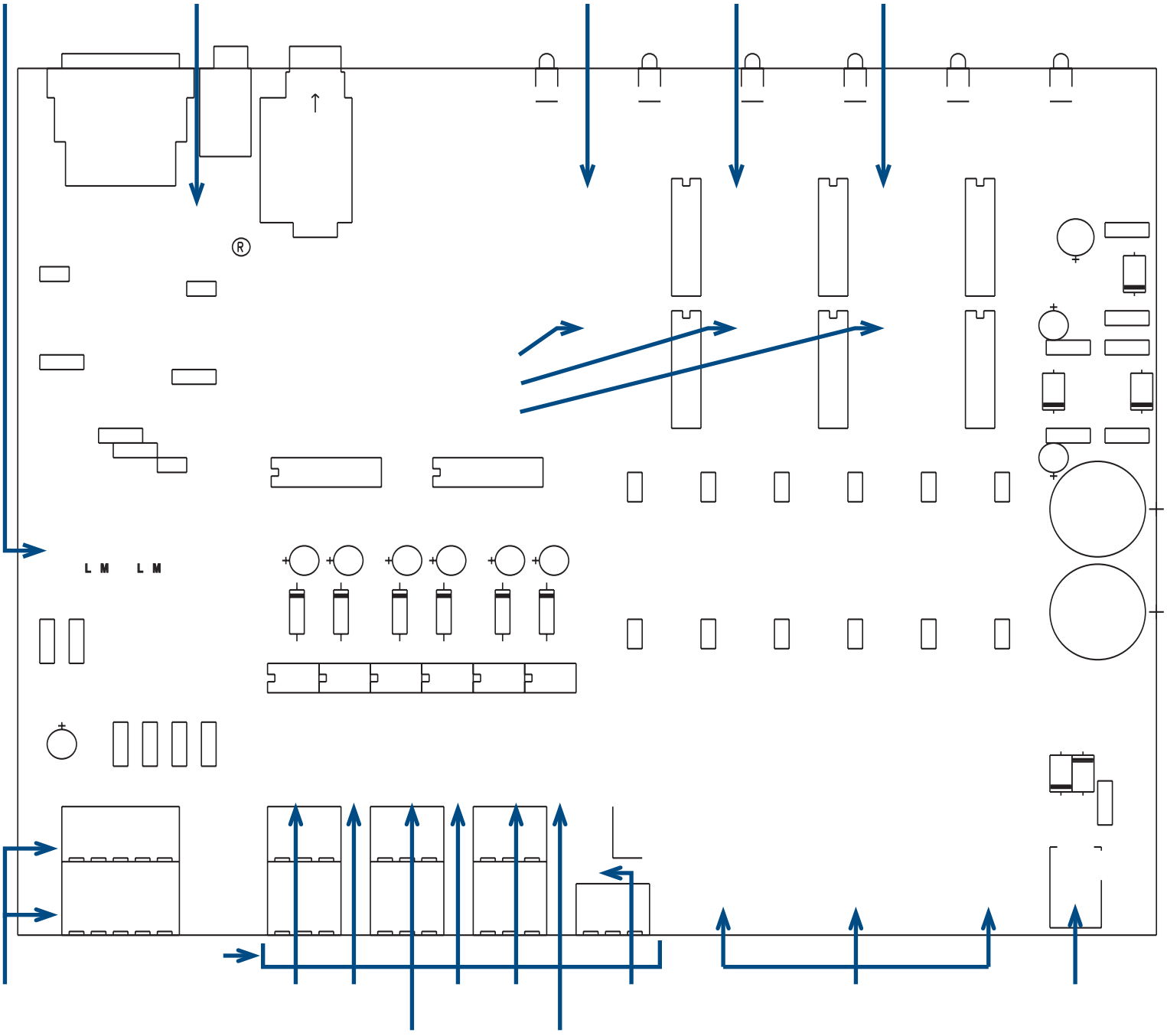
Broadcast Tools® FlexPhones Master

Jumper Layout



Appendix